
Application report - 15

REWITEC® gas engine treatment

Application date: 11.2009-05.2010

Sector: Industry (Power Plant)

Client/Partner: Major Gas Production Company
New Zealand

Responsible: John Pash (Enginecare Systems Ltd.)

Project Task: Application with REWITEC® PowerShot® to reduce wear and prolong lifetime



Fig. 1: 1995 Modell F18GL Waukesha K-005



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1. Objectives:

- To measure the effectiveness of the surface restoration.
- To measure any improvements in engine performance.

2. Application:

REWITEC® product surface restoration trial on a working engine.

The engine selected for this trial was a Model F18GL Waukesha gas engine K-005 similar make to that shown in Fig 1.

In 1995 all of the gas engines in this production plant were installed in addition to their OEM oil filters, with a special submicron filtration unit. The purpose of which was to extend their oil change out periods.

But before the REWITEC® product can be applied it is necessary to temporarily isolate the submicron filtration systems as this would remove the products components.

At the time of this trial the REWITEC® Type B1-M01 concentrate was added to K-005, this was done in two stages. This has now been superseded by the PowerShot® one stage.

This done with the engine working under load and temperature, 50% of the product was then poured into the lubricating oil. Followed 24 hours later by the remaining 50%. Then after 48 hours of continuous running the submicron filters were turned back on.

The engine hours at that time of the application – 79,480 on the 7.11.09.

3. Testing for the effects:

As part of the routine planned service intervals it was usual procedure to take cylinder compression tests.

Results Table:

Compression Tests for K-005 – Hot/Cold PSI.

CYL #	Control	After REWITEC®	APPLIED	% change
Date	17.11.09	16.02.10	26.05.10	
1	160	170	180	+ 12.0
2	155	170	175	+ 12.0
3	150	165	195	+ 30.0
4	170	165	190	+ 10.0
5	175	175	190	+ 8.0
6	200	165	185	-8.0

These show on overall average increase in the engine compression of 10.66 %.

Other than temperatures and oil pressures readings, it was not possible to measure fuel consumption.

Additional proof of the effectiveness as well as benefits the REWITEC® resurfacing was shown when the engine, along with all others at the plant were completely stripped down at 95,980 hours in May 2011.

At this point samples of the K-005 Main and Big End bearings were obtained as shown in Fig 2 & 3.



Fig 2



Fig 3

These show minimal wear signs and were within tolerance of new bearings.

In addition to these bearings a cylinder liner was also obtained from K-005 along with one other cylinder liner from an adjacent plant engine K-006 that had not been treated with the REWITEC®.

This was done as a control for comparison of the untreated and treated surface conditions, as both were working at the time of application, and are shown in Fig 4 & 5.

REWITEC® Replica sampling was done on each of the cylinder surfaces and identified as K-005 and K-006. Each cylinder was given a special coating on its internal surface and a special impression was taken for the Lab examination.

The following are Replica cylinder surface details carried out by Nanofocus GmbH in Germany on 30.11.2011.

4. Nanofocus Results:



Fig 4

- The Metal from the Cylinder liner has surfaces wear.
- There is Pitting present.
- The cylinder will loose some compression.
- The diagonal marks are the original honing impressions.
- The horizontal are caused by piston movement.



Fig 5

- The Cylinder that was treated looks better.
- The whole Surface is smoother.
- Pitting is barely present due to the REWITEC® resurfacing.
- The Piston can rest better at the cylinder wall.
- Compression will get better.

The trail has achieved its objectives –

Restoring Performance and providing long term Protection from Wear with the addition of this product.

The REWITEC® product can be reapplied to a machine whenever the performance shows a decrease, for it is not necessary to apply it on a regular basis as with oil changes.

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